Unit 3: Isochrones

Locate and briefly examine the following files:

`isochrones/1Gyr-0.019Z.txt`
`programs/plot_isochrones.py`

From the programs/ directory, plot an isochrone with age 1Gyr and Z = 0.019 on top of the CMD of your cluster. For example, if you've chosen cluster ap15656, type:

```
python plot_isochrones.py --name ap15657 --Z 0.019 --age 1
```

That isochrone probably didn't fit the cluster very well; your task is to **estimate the age of your cluster** via isochrone fitting. The following steps will get you started.

Go to the following link:
http://stev.oapd.inaf.it/cgi-bin/cmd_2.5

Scroll down to the bottom.

Under Ages/Metallicities: Select "Single Isochrone" and enter the age of the isochrone you wish to generate. You can also enter the metal abundance Z of the cluster. For reference, Z_sun = 0.019, so if you want a cluster with the same metallicity as the sun ([Fe/H] = 0), enter Z = 0.019. If you want a cluster ten times more metal-poor than the sun ([Fe/H] = -1), enter Z = 0.0019.

Under Output: Select "Isochrone tables."

Hit the Submit button and download your results table. Save it in your "isochrones" folder. `plot_isochrones.py` currently expects you to name it in this format:
age + 'Gyr-' + metallicity + 'Z.txt'

For example:
1Gyr-0.019Z.txt
7Gyr-0.0006Z.txt

Once you've saved your output, you can run `plot_isochrones.py` again to plot your isochrone on top of the CMD of your cluster.

You can generate and plot multiple isochrones to estimate the age of your cluster.